Inhabited. It's likely that the *Danes* firſt, and then the *Engliſh* deſtroyed the People; and the old Woods ſeem to thoſe that pretend to judge, to be about three or four hundred years ſtanding, which was near the time that *Courcey* and the *Engliſh* ſubdued the North of *Ireland*, and 'tis likely made havock of the People that remained after the *Danes* were beat out of *Ireland*.

IV. *De Linearum Curvarum Longitudine* *Authore* Jo. Craig.

LEMMA.

Duorum Quadratorum ſummam in alia duo Quadrata dividere.

SINT dz^2, ds^2 duo Quadrata data, quorum ſumma $dz^2 + ds^2$ dividenda eſt in alia duo Quadrata dx^2, dy^2; ſintque m, & n duo quilibet numeri ad arbitrium ſumendi. Jam ex conditione Problematis eſt $dx^2 + dy^2 = dz^2 + ds^2$, unde (ut ex Diophanto conſtat)

$$\text{erit } dx = \frac{\overline{mm - nn} \times dz + 2mnds}{mm + nn},$$

$$dy = \frac{\overline{nn - mm} \times ds + 2mndz}{mm + nn} \ldots \text{ Q. E. J.}$$

PROBLEMA.

Curvas innumeras invenire, quæ ſint ejuſdem Longitudinis cum Curva quavis propoſita, ſive Algebraica ſive Tranſcendente.

Deſignent z, s Coordinatas Curvæ propoſitæ; & x, y Coordinatas Curvæ quæſitæ, quæ ejuſdem ſit longitudinis cum propoſita; Unde ex Curvarum Elementis $dx^2 + dy^2 = dz^2 + ds^2$, Ideoque per Lemma præcedens

$$dx = \frac{mm - nn \times dz + 2mn\,ds}{mm + nn},$$

$$dy = \frac{nn - mm \times ds + 2mn\,dz}{mm + nn};$$

Quarum integrales ſunt

$$x = \frac{\overline{m^2 - n^2} \times z + 2mns}{mm + nn},$$

$$y = \frac{\overline{n^2 - m^2} \times s + 2mmz}{mm + nn}.$$

Et ſic innoteſcunt Coordinatæ x, y unius ex Curvis quæſitis; ſimiliter ex hac una invenietur ſecunda, ex ſecundâ tertia, & ſic porro innumeræ invenientur . . . . *Q. E. I.*

Exempla jam non addo, nam poſtea (Deo volente) opportunior dabitur locus, in quo Methodus hæc ad plura hujuſmodi Problemata extendetur, & Solutio Problematis hujus per Exempla illuſtrabitur. Et quidem hanc Solutionem ſemel iterumque tam apertè indicavi, ut facillimè à quovis in his verſato deduci poſſit ex iis, quæ ſubjunguntur Solutioni Casûs ſpecialis hujus Problematis, in quo ſcil. Curva propoſita eſt Algebraica, quamque exhibui in Actis Phil. R. S. Jan. 1704, ut Clariſſimo Problematis propoſitori D. Jo. Bernoulli conſtaret illius Solutionem è Methodis Calculi differentialis inverſis maximè tritis poſſe obtineri, utpote qui in privatis ſuis ad D. Cheynæum Literis ſignificabat eandem non poſſe exhiberi per Theoremata noſtra in Actis Phil. R. S. Mart. 1703. publicata. Et quoniam ex Actis Erud. Aug. 1705. percipio ſolutionem illam (quæ ſcopo prædicto ſatis ſuperque ſatisfaciebat) Doctiſſimo Viro non arridere, ideo modo præmiſſam Solutionem nulli objectioni obnoxiam publici juris facio. Neceſſe itaque eſt ut Clariſſ. Bernoulli agnoſcat vix ullum dari Problema, cujus Solutio ex Calculo Integrali facilius deducitur, quam ſui de Transformatione Curvarum.

Quæ verò in ipſius Bernoulli Solutione diſplicent paucis enarrabo. Et Primo, Quod ad Curvas tantum Algebraicas eandem extenderit. Secundo, Qnod Mechanica tantum ſit, à Motu (ut vocat) Reptorio tota dependens. Immortali quidem honore dignus eſt Hugenius ob inventum Evolutionis Motum, quia & ipſe & poſt ipſum alii plurima egregia Theoremata Geometricè exinde deduxerunt. Sed nec Motus Leibnitii Tractionis, nec Bernoulli Motus reptorius cum Hugenii Motu evolutionis comparabuntur, donec cum Hugenio celeberrimi viri Curvas per Motus ſuos genitas ad leges Geometricas revocaverint quod cum neuter eorum præſtiterit, ideo Problematum Solutiones dependentes à Curvis per Motus ſuos genitis inter Mechanicas ſolum annumerari poſſunt.